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LANTRATOV, M.F
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LANTSETTER, Ye. M

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The diagram of state of the systems sodium chloride-calcium chloride-barium chloride. A. I. Alabyshev and

M. F. Lantratov. *Trudy Leningrad. Tekhnol. Inst. im. Leningrad. Soveta* 1946, No. 12, 141-51.—Data for the binary NaCl-CaCl₂ system were taken from Menge (C.A. 6, 44); for NaCl-BaCl₂ from Gemsky (C.A. 8, 2050); for CaCl₂-BaCl₂ from Sandonnini (C.A. 8, 2050). New data for the CaCl₂-BaCl₂ system agree with those of Sandonnini and not with Cakagni and Marotta (C.A. 10, 2178), who found a double salt. Bergman and Pavlenko (C.A. 33, 2403) used the latter binary data and have an erroneously complex ternary diagram. The ternary system, studied by visual cooling curves along 4 different cuts of const. binary mol. ratios, has one simple ternary eutectic at 454° with mol. %: BaCl₂ 17.5, NaCl 35.75, CaCl₂ 46.75. This eutectic is lower than that of the BaCl₂-NaCl-KCl or CaCl₂-NaCl-KCl systems and so is more suitable for electrolysis for Na. W. W.

LANTRATOV, M.F.

3

USSR :

Solutions in fused salts. I. Activity of lead chloride in solutions in alkali and alkaline earth chlorides. M. F. Lantratov and A. F. Alabyshev. *J. Appl. Chem. U.S.S.R.* 26, 235–46(1953)(Engl. translation).—See *C.A.* 48, 5012*f*.

H. L. H.

① M. gar

LANTRATOV, M.F.

Chemical Abstracts
May 25, 1954
General and Physical
Chemistry

Investigation of solutions in fused salts. I. Activity of lead chloride in solutions in alkali and alkaline earth chlorides. M. F. Lantratov and A. F. Alabyshev. Zhur. Priklad. Khim. 26, 263-76(1953).—The e.m.fs. of cells Pb | PbCl$_2$ (N_1, a_1)-MCl (N_2, a_2) | graphite, Cl$_2$ were measured at 400-700°, and the activities and the activity coeffs. were calcd. (M = Na, K, Li, Ba, Sr, and Ca; N_1, N_2 and a_2 are the resp. mol. fractions and activities). The data are tabulated and given in curves. The deviation from the ideal is greater whenever there is a tendency to form complex salts; at higher temps. the deviation decreases. It also decreases with the radius of M and increases with the valence.

I. Benesovit.

and

LANTRATOV, N.F.

U S S R .

Investigation of solutions of infused salts. II. Activity of cadmium chloride in alkali metal and alkaline earth chloride solutions. N. F. Lantratov and A. F. Alabyshev. J. Appl. Chem. U.S.S.R. 26, 371-9(1953)(Engl. translation); Zhur. Priklad. Khim. 26, 353-63(1953); cf. C.A. 49, 38g.—The e.m.fs. of the cells Cd|CdCl$_2$, MCl$_x$|graphite, Cl$_2$ with M = K, Na, and Ba were measured from 450 to 710°, and the activities and activity coeffs. of the salts were calcd. at 500, 600, and 700°. Formation of complexes like CdCl$_3^-$, CdCl$_4^{--}$, and CdCl$_4^{---}$ caused large neg. deviations from ideal behavior except for dil. solns. of NaCl and BaCl$_2$ where CdCl$_2$ shows pos. deviations. At higher temps. deviations become less neg. owing to increased dissocn. of the complexes. Deviations become more neg. with increase in cation radius and decrease in cation charge of M. The deviations of CdCl$_2$ solns. are larger than those of PbCl$_2$ because of the smaller size of Cd^{++}.   Edward J. King

LANTRATOV, M.F.

USSR.

Solutions in fused salts. III. Activity of zinc chloride in solutions of alkali chlorides. M. F. Lantratov and A. F. Alabyshev (V. I. Ul'yanov-Lenin Electrotech. Inst., Leningrad). Zhur. Priklad. Khim. 27, 722-34(1954); cf. C.A. 48, 5612f.—The e.m.fs. of cells Zn|ZnCl$_2$ (a_1, M_1)-MCl$_x$-(a_2, M_2)|graphite, Cl$_2$, (M = K, Na, and Ba) in the range 400–600° change not only with the temp. and concn. but also with M and the character of the complexes formed by the ions. The neg. deviation of a_1 decreases as the radius of M decreases and its charge increases. For the chlorides of Pb, Cd, Zn, and Mg in solns. of MCl$_x$ (M = alkali metals and alk. earth metals) the neg. deviation of a_1 increases with the tendency toward complex formation and the stability of the complex ions. For ZnCl$_2$ and NaCl the activity coeffs. γ_1 and γ_2 are less than 1 over the entire concn. range and curves M vs. γ at 600° extrapolated to $N = 0$ give for γ_1 and γ_2 values of 0.102 and 0.120, resp.; these deviations increase for temp. isotherms.
I. Bencowitz

ZANTRATOV M.F.

Investigations of solutions of molten metals. I. Activity of zinc in zinc-antimony-tin solutions. A. P. Alabyshev and M. F. Lantratov. J. Appl. Chem. U.S.S.R. 27, 797-803 (English translation).—See C.A. 49 1417h.
D. M. R.

LANTRATOV, M.F.

U S S R

Activity of zinc in [molten] zinc-tin-antimony solutions. A. F.
Alabyshev and M. F. Lantratov (*Zhur. prikl. Khim.*, 1954, 27,
851—859).—The e.m.f. of the concn. cells Zn|ZnCl₂ + (KCl, LiCl,
NaCl)|Zn-Sn-Sb at 615° varies irregularly with change in the
relative proportions of the constituents of the molten alloys.

These variations are associated with formation of intermetallic
compounds.   R. Truscoe.

137-58-6-11486

AUTHORS: Alabyshev, A.F., Lantratov, M.F.

TITLE·   Thermodynamic Properties of $PbCl_2$, $CdCl_2$, and $ZnCl_2$ in Solutions Thereof with the Chlorides of Potassium, Sodium, Lithium, and Barium (Termodinamicheskiye svoystva $PbCl_2$, $CdCl_2$, i $ZnCl_2$ v rastvorakh ikh s khloridami kaliya, natriya, litiya i bariya)

ABSTRACT: Calculations are made of the isobaric-isothermal potentials of formation, ΔZ, the entropy, ΔS, and the enthalpy of formation, ΔH, of the salts $PbCl_2$, $CdCl_2$, and $ZnCl_2$ by the emf's of reversible chemical chain reactions of the type of $M_1[M_1Cl_2(N_1)+M_{11}Cl_n(N_2)]Cl_2$ where M_1Cl_2 represents $PbCl_2$, $CdCl_2$, or $ZnCl_2$, and $M_{11}Cl_n$ represents $LiCl$, KCl, $NaCl$, or $BaCl_2$ at 500-700°C. It is found that the ΔZ of $PbCl_2$ in the presence of KCl, NaCl, LiCl, or $BaCl_2$ is smaller than for CdCl and ZnCl, and that this is due to the formation in the solution of complex ions, in which the cations Pb^{2+}, Cd^{2+}, and Zn^{2+} are complex-formers. As the radius of the complex-

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137-58-6-11486

Thermodynamic Properties of (cont.)

forming ion and the temperature diminish, the deviation from the ideal in the behavior of the solutions rises; this is attributed to the increase in size of the complex ions.

<div align="right">B.L.</div>

1. Halogen chlorides--Thermodynamic properties   2. Mathematics--Applications

Card 2/2

VYACHESLAVOV, Petr Mikhaylovich, dots., kand. khim. nauk; LANTRATOV, M.F.,
dots., kand. khim. nauk, retsenzent; GRILIKHES, S.Ya., kand. tekhn.
nauk, red.; YAMPOL'SKIY, A.M., inzh., red.; SIMONOVSKIY, E.Z.,
red. izd-va; SOKOLOVA, L.V., tekhn. red.

[Fundamentals of electroplating] Osnovnye poniatiia o gal'vano-
tekhnike. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.
lit-ry, 1958. 38 p. (Bibliotechka gal'vanotekhnika, no.1).
                        (Electroplating)   (MIRA 11:9)

LANTRATOV, M. U. F.

PHASE I BOOK EXPLOITATION   SOV/1297

Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu radioaktivnykh i stabil'nykh izotopov i izlucheniy v narodnom khozyaystve i nauke, Moscow, 1957

Poluchaniye izotopov. Moshchnyye gamma-ustanovki. Radiometriya i dozimetriya; trudy konferentsii... (Isotope Production. High-energy Gamma-Radiation Facilities. Radiometry and Dosimetry) Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science) Moscow, Izd-vo AN SSSR, 1958. 293 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR; Glavnoye upravleniye po ispol'zovaniyu atomnoy energii SSSR.

Editorial Board: Frolov, Yu.S. (Resp. Ed.), Zhavoronkov, N.M. (Deputy Resp. Ed.), Aglintsev, K.K., Alekseyev, B.A., Bochkarev, V.V., Leshchinskiy, N.I., Malkov, T.P., Sinitsyn, V.I., and Popova, O.L. (Secretary); Tech. Ed.: Novichkov, N.D.

PURPOSE: This collection is published for scientists, technologists, persons engaged in medicine or medical research, and others concerned with the production and/or use of radioactive and stable isotopes and radiation.

COVERAGE: Thirty-eight reports are included in this collection under three main subject divisions: 1) production of isotopes, 2) high-energy gamma-radiation facilities, and 3) radiometry and dosimetry.

TABLE OF CONTENTS:

PART I. PRODUCTION OF ISOTOPES

Frolov, Yu.S., V.V. Bochkarev, and Ya.Ye. Kulish. Development of Isotope Production in the Soviet Union. This report is a general survey of production methods, apparatus, raw materials, applications, investigations, and future prospects for radio isotopes in the Soviet Union.

Card 2/12

Card 11/12

AUTHORS: Alabyshev, A. F., Lantratov, M. F.,   SOV/74-27-8-1/7
              Morachevskiy, A. G. (Leningrad)

TITLE: The Thermodynamic Properties of Liquid Alloys Containing Alkali
              Metals (Termodinamicheskiye svoystva zhidkikh splavov, soder-
              zhashchikh shchelochnyye metally)

PERIODICAL: Uspekhi khimii, 1958, Vol. 27, Nr 8, pp. 921 - 937 (USSR)

ABSTRACT: First the authors mention that during the last years the interest
              in the investigation of the thermodynamic properties of liquid
              metal solutions has considerably increased. The investigation
              of these thermodynamic properties plays an important role in
              the elaboration of present-day theory of concentrated solutions.
              The investigation of the thermodynamic properties of potassium
              and sodium alloys (Refs 22-24) is of special interest. There
              are, generally speaking, two methods for the experimental in-
              vestigation of the thermodynamic properties of liquid alloys
              containing any alkali metal: the method of the measuring of
              the partial vapor pressure, and the method of measuring the
              EMF of concentrated chains (Refs 1,2, 8, 25).After referring to
Card 1/3   some papers dealing with this field (Refs 31-38) the authors in

The Thermodynamic Properties of Liquid Alloys   SOV/74-27-8-1/7
Containing Alkali Metals

a special chapter mention the potassium and sodium alloys of
lead. In the next chapter the authors deal with the sodium,
potassium and cesium alloys of mercury. The third chapter
deals with the sodium and potassium alloys with thallium. In
the fourth chapter the sodium and potassium alloys with bismuth
are described. In the fifth chapter the authors deal with the
sodium alloys with tin, and in the sixth chapter with the
sodium alloys with cadmium. The seventh chapter deals with the
entropy and the degrees of the heat in the mixture of the
alloys. Then it is mentioned that the formation of alloys in
which also alkali metals are contained takes place exothermally.
The partial molar mixture entropy (in formation of compounds)
differs greatly from the theoretical values obtained. The
considerable negative values $\overline{\Delta S}$ may be explained by the nature
of the chemical bonds in metal compounds. There are 19 figures,
1 table, and 79 references, 31 of which are Soviet.

Card 2/3

The Thermodynamic Properties of Liquid Alloys   SOV/74-27-9-1/7
Containing Alkali Metals
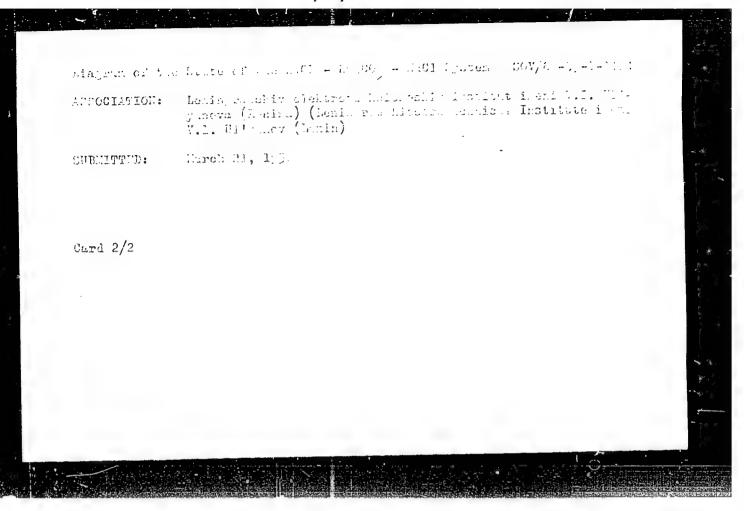
1. Alloys (Liquid)--Thermodynamic properties   2. Alkali metals--Thermodynamic
properties   3. Intermetallic compounds--Bonding

Card 3/3

ALABYSHEV, A.F.; LANTRATOV, M.F.; SOKOLOVA, L.I.

Electric conductivity of the $NaOh-Na_2CO_3-NaCl$ system. Zhur.prikl. khim. 31 no.11:1749-1752 N '58.   (MIRA 12:2)

1.Leningradskiy elektrotekhnicheskiy institut imeni V.L. Ul'yanova (Lenina).

(Systems (Chemistry))   (Electric conductivity)

ALABYSHEV, A.F.; GRACHEV, K.Ya.; ZARETSKIY, S.A.; LANTRATOV, M.F.;
FEDOT'YEV, N.P., prof., retsenzent; KHAIN, P.G., inzh., retsen-
zent; MORACHEVSKIY, A.G., red.; ERLIKH, Yo.Ya., tekhn.red.

[Sodium and potassium; their preparation, properties, and uses]
Natrii i kalii; poluchenie, svoistva, primenenie. Pod red. A.F.
Alabysheva. Leningrad, Gos.nauchno-tekhn.izd-vo khim.lit-ry.
1959. 390 p.   (MIRA 13:3)
      (Sodium)   (Potassium)

AUTHOR: Lantratov, M.F. and Alabyshev, A.F.   SOV/80-32-1-11/

TITLE: Diagram of the State of the NaOH - Na$_2$CO$_3$ - NaCl System (Dia-
               gramma sostoyaniya sistemy NaOH - Na$_2$CO$_3$ - NaCl)

PERIODIC. L: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 65-70 (USSR)

ABSTRACT:
The diagram of the state of the NaOH - Na$_2$CO$_3$ - NaCl system
has not been investigated thus far. The authors studied the
temperatures of the beginning of crystallization for a number
of compounds of this system, rich in NaOH and containing up
to 50% (by weight) of NaCl or soda. The investigation was
conducted by the visual-polythermal method. The temperature
of the crystallization beginning was determined by means of
a chromel-alumel thermocouple with an accuracy of ± 1°. The
following compounds were investigated: NaOH - NaCl;
NaCl - Na$_2$CO$_3$; NaOH - Na$_2$CO$_3$, and NaOH - Na$_2$CO$_3$ - NaCl, and
the results of determinations are presented both in the
tabular and graphical form. In particular, a part of the
triangular of concentrations of the NaOH - Na$_2$CO$_3$ - NaCl
system pictured in Figure 6 shows that it is possible to
store up to 10 to 20% of NaCl with the same concentration
soda in the smelt under practical conditions at a temperature
of electrolysis of 300°C.
There are 6 graphs, 1 table, and 12 references, 6 of which
are Soviet, 2 Italian, and 4 German.
Card 1/2

diagram of the State of the $MgCl_2 - KCl CO_2 - HCl$ system   SOV/A-59,-19-10-1

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut imeni V.I. Ul'yanova (Lenina) (Leningrad Electrotechnical Institute imeni V.I. Ul'yanov (Lenin)

SUBMITTED: March 21, 1959.

Card 2/2

5(4)
AUTHORS: Lantratov, M. F., Shevlyakova, T. N.   SO7/78-4-5-34/46

TITLE: The Thermo-dynamical Properties of the Solutions of Melted Salts in the System $PbBr_2$-KBr (Termodinamicheskiye svoystva rastvorov rasplavlennykh soley v systeme $PbBr_2$-KBr)

ABSTRACT: The thermodynamical properties of solutions of melted $PbBr_2$-KBr were calculated as follows according to the data of electric conductivity in the reversible chemical chain: (Graphite)Pb|$PbBr_2$(a_1, N_1)+KBr(a_2, N_2)|Br_2(graphite). (a_1 and a_2 denote the activities; N_1 and N_2 - the ratio of molar weights of the components). The lead metal and the initial salts $PbBr_2$ and KBr are of the highest degree of purity. For the purpose of measuring electric conductivity the high-ohmic potentiometer PPTV-1 and as zero-instrument an optical galvanometer with a sensitivity of 1.10^{-9}a were used. The construction of the cell for measuring electric

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The Thermo-dynamical Properties of the Solutions of   SOV/78-4-5-34/46
Melted Salts in the System $PbBr_2$-KBr

conductivity is shown by figure 1. Measurements were carried
out at 380° - 590°. The E_0-dependence of the chemical chain
(graphite) $Pb|PbBr_2|Br_2$ (graphite) on temperature is shown by
table 1. Table 2 shows the E_0 of the chemical chain
(graphite) $Pb|PbBr_2$ (N_1) - + $KBr(N_2)|Br_2$ (graphite) and
the thermo-dynamical data concerning $PbBr_2$ and KBr at 589
and 539° and the different composition of the solution N_1.
The activities of $PbBr_2$ at 589° (1) and 539° (2) and of KBr
at 589 (3) and the activity coefficients $PbBr_2$ at 589° (1)
and 539° (2) and KBr at 589° (3) are shown by figures 2
and 3. Figures 2 and 3 show that a negative deviation from
Raul's law occurs in the system $PbBr_2$-KBr. The activity
coefficients of $PbBr_2$ and KBr are in all concentration
ranges smaller than unity. In $PbBr_2$- and KBr-solutions

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The Thermo-dynamical Properties of the Solutions of   SOV/78-4-5-34/46
Melted Salts in the System $PbBr_2$-KBr

the complex ions $[Pb_2Br_5]^-$ and $[PbBr_4]^{2-}$ are formed, which cause the negative deviation. Figure 4 shows the partial data concerning $\Delta\bar{Z}_1$ and $\Delta\bar{Z}_2$ and the values of the molar isobaric-isothermal potential (ΔZ). The thermodynamical data of the system $PbBr_2$-KBr at 589° are given in table 3. It was found that the formation of the solution $PbBr_2$-KBr is accompanied by considerable heat generation. The maximum value for the mixing enthalpy is 7460 cal/g-mol. There are 4 figures, 3 tables, and 6 references, 3 of which are Soviet.

SUBMITTED: February 20, 1958

Card 3/3

18(6)   SOV/78-4-6-33/44

AUTHOR: Lantratov, M. F.

TITLE: Investigation of the Thermodynamic Properties of   Liquid
Metallic Solutions in the System Magnesium - Lead (Issledo-
vaniye termodinamicheskikh svoystv zhidkikh metallicheskikh
rastvorov v sisteme magniy-svinets)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 6,
pp 1415 - 1419 (USSR)

ABSTRACT: The electric conductivity of the concentration chain
$Mg/MgCl_2$+ (KCl, LiCl, NaCl)/Mg+Pb in alloys which contain

N_{Mg} = 1.0 - 0.1 was measured in the temperature range 650-700°.

The results are given in table 1. The activity, the activity
coefficients of the isobaric-isothermal potential and the
excess potential of lead were investigated at 700° and the
results are given in table 2. The isothermal of the activity
of magnesium at 700° and 650° and that of lead at 700° are
given in figure 1. The activity coefficients of magnesium at
700°, 650°, and 560° and those of lead at 700° are given in

Card 1/2   figure 2. The isobaric-isothermal potential of magnesium at

Investigation of the Thermodynamic Properties of the   SOV/78-4-6-33/44
Liquid Metallic Solutions in the System Magnesium - Lead

700° is given in figure 3. The thermodynamic integral values
of the system magnesium-lead at 700° are given in figure 4.
The formation of the magnesium-lead alloys is accompanied by
a considerable heat emission. A considerable negative deviation
from Raoult's law was detected. The liquid-metallic solution
of Mg-Pb is characterized by a considerable mutual influence
of the component. The maximum value of the mixture heat amounts
to ΔH_{max} = -2.34 kcal/g-atom. There are 4 figures, 2 tables,
and 6 references, 3 of which are Soviet.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova
(Lenina)(Leningrad Electrotechnical Institute imeni V. I. Ul'-
yanov (Lenin))

SUBMITTED: March 1, 1958

Card 2/2

5(2)
AUTHOR: Lantratov, M. F.   SOV/78-4-9-19/44

TITLE: An Investigation of the Thermodynamical Properties of Liquid
            Metallic Solutions in the System Sodium - Lead

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 2043-2051
            (USSR)

ABSTRACT: A. F. Alabyshev and A. G. Morachevskiy are named in an intro-
            ductory quotation of the respective publications (Refs 1-5).
            The investigation of the title systems were carried out for a
            sodium concentration ranging from 0.05 to 0.9 N_{Na} and tempera-
            tures between 400 and 600°. The thermodynamical properties were
            calculated from values obtained for the electromotive force
            (EMF) and their temperature coefficients (dE/dT). Na/electrolyte
            with $Na^{+}/Na/(N_{Na} + Pb(N_{Pb})$ (where N_{Na} and N_{Pb} = atomic content of
            Na and Pb, resp. in the alloys) was used as concentration chain.
            Solid glass containing sodium oxide was used as electrolyte
            (Refs 3, 4, 6-11). Experimental values for the EMF and calculated
            thermodynamical data (activity coefficient, partial and integral
            molar isobaric-isothermal potential, partial and integral molar
            entropy, heat mixing additional potentional, and additional

Card 1/2

An Investigation of the Thermodynamical Properties of   SOV/78-4-9-19/44
Liquid Metallic Solutions in the System Sodium - Lead

entropy) are given in tables 1, 2, and in figures 1-5. The EMF
shows a linear temperature dependence. The system exhibits
considerable deviations from the ideal state, which increase with
falling temperatures. This is explained by the existence of
structural groups of metallic compounds in the liquid phase
(V. I. Danilov Ref 19, and I. V. Radchenko Ref 20). The curve
obtained by plotting the sodium activity versus the temperature
in a semi-logarithmic coordinate system is linear. The peaks of
the integral curve lie between N_{Na} = 0.5 and 0.6. The formation
of Na - Pb alloys is exothermic, the maximum for ΔH being
-4.25 kcal/g atom. The mixing heat depends largely on the value
of the isobaric-isothermal potential. Negative values for the
integral molar entropy were found for a large interval (N_{Na} =
0.8 - 0.23) which was partly ascribed to the ionic character of
NaPb compounds. There are 5 figures, 2 tables, and 33 references,
14 of which are Soviet.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova
(Lenina)(Leningrad Institute of Electrical Engineering imeni
V. I. Ul'yanov (Lenin))

SUBMITTED: May 29, 1958

Card 2/2

5 (4)

AUTHORS: Morachevskiy, A. G., Lantratov, M. F.   SOV/79-29-7-1/65

TITLE: Mixing Enthalpy in the Sodium-tin System (Ental'piya sme-
              sheniya v sisteme natriy-olovo)

ABSTRACT: In the present paper the determination results of the electro-
              motive forces (EMF) of the concentration chain Na/electrolyte
              with the ions Na^+/Na+Sn(1) are given in a wide temperature
              range (400-650°) as well as the concentrations of sodium in
              the alloy. The data obtained are utilized for the computation
              of the mixing enthalpy of liquid sodium- tin alloys at 600°.
              The experimental data mentioned in the papers of references 1-4
              do not permit a computation of the mixing enthalpy within the
              entire range of the compounds because of the lack of reliable
              data on the temperature coefficient of the EMF($\frac{dE}{dT}$) within the

              range of the concentrations N_{Na} = 0.35-0.75. It was of interest

              to compute the intensity of the mixing enthalpy from the
              determinations of the EMF within a wide temperature range and
Card 1/2   to compare the resultant values with those obtained from

Mixing Enthalpy in the Sodium-tin System   SOV/79-29-7-1/83

publications by means of direct calorimetric measurements
(Ref 5). For this purpose the EMF chains (1) were newly
determined in the above temperatures range with sodium con-
centrations of from 0.05 to 0.85 of atomic yield. The method
of determination used was described already earlier (Refs 1,3,6).
Table 1 gives the EMF values of the temperature coefficient
$(\frac{dE}{dT})$ as well as those of the partial molar isobaric-isothermal
potentials ($\triangle \overline{Z}_{Na}$) and of the mixing enthalpy ($\triangle \overline{H}_{Na}$) of sodium
at 600°. Figure 1 illustrates the temperature dependence of
the EMF for alloys of various compositions and figure 2 shows
the dependence of $\frac{dE}{dT}$ on the composition of the alloy. There are
4 figures, 2 tables, and 16 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut i Leningradskiy elek-
trotekhnicheskiy institut imeni V. I. Ul'yanova (Lenina)
(Leningrad Polytechnic Institute and Leningrad Institute of Elec-
trical Engineering imeni V. I. Ul'yanov (Lenin))

SUBMITTED: June 26, 1958
Card 2/2

AUTHORS: Lantratov, M.F., Solov'yeva, M.I.   SOV/80-32-2-11/56

TITLE: Investigation of the Thermodynamic Properties of Liquid
Metal Solutions of Potassium With Bismuth (Issledovaniye
termodinamicheskikh svoystv zhidkikh metallicheskikh rastvorov
kaliya s vismutom)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 2
pp 304-308 (USSR)

ABSTRACT: The thermodynamic properties of potassium were calculated
from the emf - values of the circuit potassium/electrolyte
with the ions potassium/potassium (N_K) + bismuth (N_{Bi}). In
the liquid K - Bi solutions considerable negative devia-
tions from an ideal behavior are observed. For an alloy with
$N_K = 0.5$ the activity is 0.00018, for $N_K = 0.45$ it is
0,000,001,74. This is explained by the binding of potassium
into stable structural groups of metallic compounds. Figure
2 shows that the activity isotherm of bismuth (Curve 3) is
completely in the area of negative deviations. In Figure 3
the internal excess potential (Curve 1), the excess entropy
of mixing (Curve 2), the mixing heat (Curve 3), and the
potential (Curve 4) show clearly marked extremes which are
    Card 1/2   due to the character of the bonds in the formed metallic

SOV/80-31-2-11/55

Investigation of the Thermodynamic Properties of Liquid Metal Solutions of Potassium With Bismuth

compounds.
There are 3 graphs, 3 tables, and 9 references, 3 of which are Soviet, 5 German, and 1 English.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut imeni V.I.Ul'-
                yanova (Lenina) (Leningrad Electrotechnical Institute imeni
                V.I. Ul'yanov (Lenin))

SUBMITTED: March 21, 1958

Card 2/2

.5(4) ·   SOV/76-33-8-2o/39

AUTHORS: Lantratov, M. F.,   Tsarenko, Ye. V.

TITLE: Investigation of the Thermodynamic Properties of Liquid Metallic
                Solutions. The System Potassium-Thallium

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 8, pp 1792-1797
                (USSR)

ABSTRACT: The electromotive force (EMF) of the concentration cells
                K | glass | K-Tl for solutions with 12.6 to 95 atom% Tl was
                measured in the temperature range of 475-525°C. The design
                of the measuring cell (Fig 1) was the one described in
                references 2, 3, 11. The electrolyte was glass 35-5K
                (68% SiO_2, 29% B_2O_3, 3% Al_2O_3, 4% Na_2O and 5% K_2O). The tem-
                perature was measured with a chromel/aluminum thermocouple
                via a potentiometer PP while the (EMF) was determined by means
                of a potentiometer PPTV-1. The thermodynamic properties of
                the liquid K-Tl solutions were calculated from the (EMF) values
                obtained for the concentration cells potassium | electrolyte
                with K^+-ions | potassium (N_K)-thallium (N_{Tl}) (Table 1)

Card 1/3   (N_K and N_{Tl} = atomic fraction of solution components). The

SOV/76-33-9-20/3?

Investigation of the Thermodynamic Properties of Liquid Metallic Solutions
The System Potassium-Thallium

properties calculated were activity, activity coefficient,
partial molar free energies and excessive free energies for
K and Tl at 525°C, as well as the integral values of the
molar free energies ΔF of the excessive free energies ΔF^{*}
of the mixture entropy ΔS, of the excessive mixture entropy ΔS^{*},
and the mixture heat ΔH (Table 2). The activity of K exhibits
a complex dependence on the composition. Alloys with 0 — 25 At%Tl
show a positive deviation from Raoult's law while solutions
with less than 25 At% Tl deviate in the negative direction.
These deviations are increased by lower temperatures. A similar-
ly complicated matter are the isotherms of the activity co
efficient of K. This behavior of liquid K Tl solutions is con-
sidered to be due to a strong reaction taking place between
K and Tl whereby structural groups of metallic compounds form
in the solution. The integral curves of ΔF, ΔF^{*}, ΔS^{*} and ΔH
exhibit extremes at $N_{K} = 0.4$ $\Delta H = 3560$ cal, $\Delta F = 2680$ cal.

$\Delta F^{*} = 1510$ cal and $\Delta S^{*} = 2.44$ cal/degree. Since the values
ΔH are for all compositions greater than the respective
values for ΔF^{*}, K-Tl solutions may not be regarded as "regular"

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SOV/76-33-8-20/39

Investigation of the Thermodynamic Properties of Liquid Metallic Solutions
The System Potassium-Thallium

ones (Ref 13). The shift of the extreme value away from the
one which would correspond to the most stable K-Tl compound
is explained by the fact that there are in the liquid alloys
compounds richer in Tl side by side with the K-Tl compound.
There are 4 figures, 2 tables, and 13 references, 5 of which
are Soviet.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova
(Lenina)
(Leningrad Electrotechnical Institute imeni V. I. Ul'yanov
(Lenin))

SUBMITTED: January 31, 1958

Card 3/3

5(4)

05837
SOV/76-33-10-35/45

AUTHORS: Lantratov, M. F., Morachevskiy, A. G.

TITLE: On the Use of Glass as an Electrolyte in Investigations of the
              Thermodynamic Properties of Sodium Alloys

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33 Nr 10,
              pp 2339 - 2344 (USSR)

ABSTRACT: Investigation of the thermodynamic properties of metallic systems
              by measuring the electromotive force encounters some difficulties
              when using melted salts of these metals so that preferable use is
              made of solid electrolytes. The following authors have worked
              in this field: Wachter (Ref 8), Truempler (Ref 9), Hauffe (Ref 5),
              Kubaschewski and Hugler (Ref 7), Wagner and Engelhardt (Ref 3),
              Vierk (Ref 17), Porter and Feinleib (Ref 18). A. F. Alabyshev
              and A. G. Morachevskiy (Ref 19), Frauenschill and Halla (Ref 12),
              as well as Halla and Hrdy (Ref 13). The applicability of the
              following kinds of glass as electrolytes in investigations of
              sodium alloys was checked here: Nr 23, Nr 29, Nr 46, ZS-8, ZS-5K,
              and glass containing boron and sodium (Refs 19,20) (Table 1:
              composition of these kinds of glass). The electromotive force
Card 1/2   of the cells sodium|glass|sodium alloy and Na|glass|melted elec-

05837

On the Use of Glass as an Electrolyte in Investigations   SOV/76-33-10-35/45
of the Thermodynamic Properties of Sodium Alloys

        trolyte with sodium ions|glass| sodium alloy was measured at
$400-550^{\circ}$ by means of a PPTV-1 potentiometer and a mirror gal-
vanometer. It was found that the electromotive force did not
depend on the kind of glass used (Tables 2-3) and the two
afore-mentioned cells are equivalent in accordance with the
theoretical conditions established by Haber (Ref 21),Truempler(ref 9).
Truempler and Schuler (Ref 22). There are 3 figures, 3 tables,
and 25 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova
        (Lenina) (Leningrad Institute of Electrical Engineering imeni
        V. I. Ul'yanov (Lenin)). Leningradskiy politekhnicheskiy in-
        stitut im. M. I. Kalinina (Leningrad Polytechnic Institute imeni
        M. I. Kalinin)

SUBMITTED: April 2, 1958

Card 2/2

5.4700
5.1310
5(4)

66835
SOV/76-33-11-9/47

AUTHORS: Lantratov, M. F., Alabyshev, A. F.

TITLE: Investigation of the Thermodynamic Properties of Liquid
              Metallic Solutions of Potassium With Thallium, Lead, and
              Bismuth

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 11, pp 2429-2434
              (USSR)

ABSTRACT: The investigation of the alkaline-metal alloys are of special
              interest for the development of a new production method of
              these metals by electrochemical deposition on a liquid lead
              cathode and subsequent vacuum distillation of the alloy. In the
              present case the method of the electromotive force was applied,
              and the thermodynamic properties of the cell potassium | electro-
              lyte with potassium ions | potassium alloy were calculated.
              K_2O-containing glass was used as electrolyte, as was also done

              in the studies of Hauffe (Ref 1), Kubaschewski and Hugler
              (Ref 2), Vierk (Ref 3), as well as A. F. Alabyshev and A. G.
              Morachevskiy (Refs 5-8). The design of the cell (Fig 1) and
              the operational method were described in detail in references 1
Card 1/3   and 7. The isothermal lines and activity coefficients of potas-

66855
SOV/76-33-11-9/47

Investigation of the Thermodynamic Properties of Liquid Metallic Solutions
of Potassium With Thallium, Lead, and Bismuth

sium and thallium at 525°C show that a deviation from the
Raoult law occurs. This may be explained by structural groups
which are present in the liquid alloy. The system potassium -
lead was investigated in the temperature range $525-600^\circ$C. No
separation of layers was observed, in contradistinction to the
data of reference 12 and in accordance with the explanation of
D. N. Shoykhet, A. G. Morachevskiy, and A. F. Alabyshev. For
potassium and lead, the activity isothermal lines negatively de-
viated from the Raoult law. The alloy potassium - bismuth was
tested at 575°C. Heat emission was observed during the formation
of the alloy, and it was found that only the stable compound of
K_3Bi is present. The considerable negative deviation of the ex-
cess mixing entropy is explained by the partially ionic charac-
ter of the bonds in the compounds. There are 7 figures and
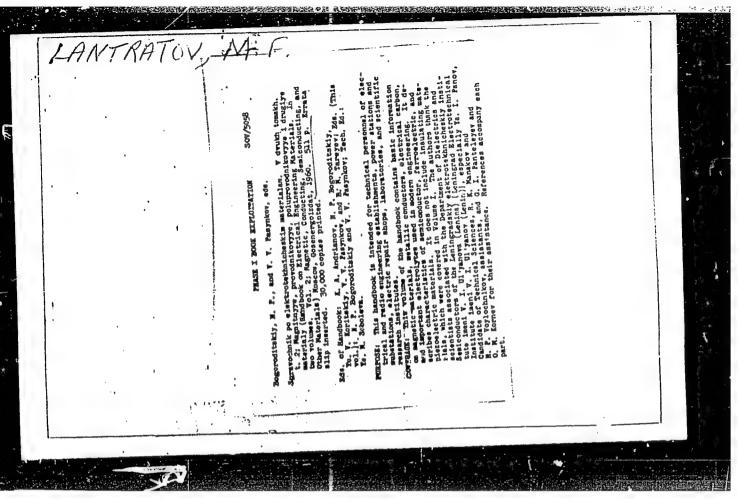12 references, 6 of which are Soviet.

ASSOCIATION: Elektrotekhnicheskiy institut im. V. I. Ul'yanova (Lenina),
Card 2/3   Leningrad (Institute of Electrical Engineering imeni V. I. Ul'-

66855

SOV/76-33-11-9/47

Investigation of the Thermodynamic Properties of Liquid Metallic Solutions
of Potassium With Thallium, Lead, and Bismuth

yanov (Lenin), Leningrad)

Card 3/3

LANTRATOV, M. F.

PHASE I BOOK EXPLOITATION   SOV/5058

Bogoroditskiy, N. P., and V. V. Pasynkov, eds.

Spravochnik po elektrotekhnicheskim materialam, v drukh tomakh.
t. 2; Magnitnyye, provodnikovyye, poluprovodnikovyye i drugiye
materialy (Handbook on Electrical Engineering Materials. In
two volumes. Vol. 2; Magnetic, Conducting, Semiconducting, and
Other Materials) Moscow, Gosenergoizdat, 1960. 511 p. Errata
slip inserted. 30,000 copies printed.

Eds. of Handbook: L. A. Andrianov, N. P. Bogoroditskiy, Eds. (This
Vol.); N. P. Bogoroditskiy and V. V. Pasynkov, Tech. Ed.:
Ye. M. Sokoleva.

PURPOSE: This handbook is intended for technical personnel of elec-
trical and radio engineering establishments, power stations and
substations, electric repair shops, laboratories, and scientific
research institutes.

COVERAGE: This volume of the handbook contains basic information
on magnetic materials, metallic conductors, electrical carbon,
and important electrolytes used in modern engineering. It de-
scribes characteristics of semiconductor, ferroelectric, mate-
piezoelectric materials. It does not include insulating the
scientists associated with the Department of Dielectrics and
rials, which were covered in Volume I. The authors thank the
tute imeni V. I. Ul'yanova (Lenin)] especially Ya. I. Panov,
Semiconductors of the Leningradskiy elektrotekhnicheskiy insti-
Institute imeni V. I. Ul'yanov (Lenin)] especially R. K. Manakov and
Candidate of Technical Sciences, R. K. K. Panteleyev and
R. F. Voylochnikov, assistants, and G. I. Panteleyev and
O. N. Kornev for their assistance. References accompany each
part.

Handbook on Electrical Engineering (Cont.)   SOV/5058

Card 17/19

Handbook on Electrical Engineering (Cont.)   SOV/5058

Card 18/19

Handbook on Electrical Engineering (Cont.)   SOV/5058

Ch. XXXIII. Physicochemical Properties of Fused Salts
             (M. F. Lantratov)

AVAILABLE: Library of Congress

Card 19/19   JP/dfk/os
                                              5/8/61

S/153/60/003/004/017/040/XX
B020/B054

AUTHORS: Alabyshev, A. F., Lantratov, M. F., Morachevskiy, A. G.

TITLE: Electromotive Force of the Chemical Chain Pb | PbCl$_2$ | Cl$_2$

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
              khimicheskaya tekhnologiya, 1960, Vol. 3, No. 4,
              pp. 649 - 652

TEXT: The authors attempted to interpret the principal causes of the
divergence of experimental results, and their deviation from results ob-
tained on the basis of thermodynamic calculations. These problems are
studied by the example of emf of the chain mentioned in the title. A
table lists experimental data obtained by various authors who studied
this chain, as well as theoretical values of emf of this chain calculat-
ed from thermodynamic data (Ref.15). A figure illustrates the deviation
of experimental results found by various authors from thermodynamically
calculated values. Measurement results of emf of the chain mentioned
in the title show that the change of emf with temperature is almost
linear. Emf values nearest to the thermodynamically calculated values

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Electromotive Force of the Chemical Chain   S/153/60/003/004/017/040/XX
Pb | PbCl$_2$ | Cl$_2$ B020/B054

were obtained in investigations in which the chlorine electrode was ob
tained by saturation of a graphite electrode with chlorine gas, as well
as in those in which the electrode spaces were separated from each
other. The space around the chlorine electrode must be saturated with
chlorine, and the space around the lead electrode with lead. A penetra
tion of lead into the zone of the chlorine electrode should be avoided
to exclude reactions leading to depolarization. The preliminary treat-
ment of the graphite rods used to manufacture the chlorine electrode is
very important; this treatment consists in a prolonged chlorination at
high temperatures. The purity of the graphite used is also important.
B. P. Artamonov (Ref.9) is mentioned. There are 1 figure, 1 table, and
18 references: 9 Soviet, 2 US, 6 German, and 1 British.
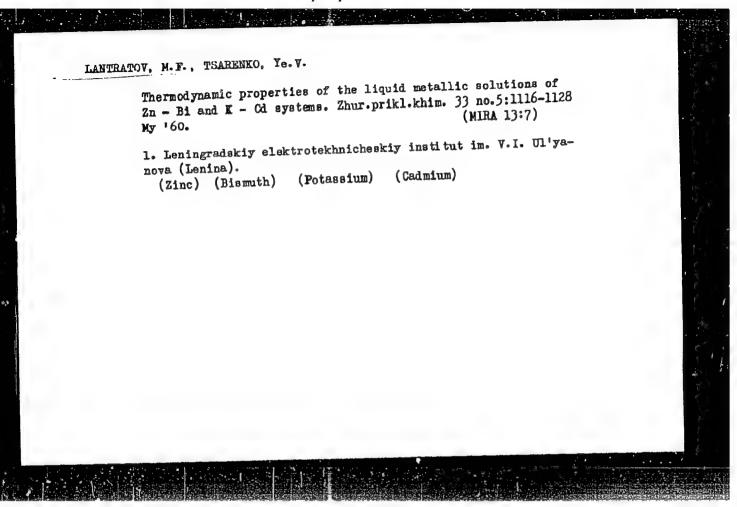
ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M.I. Kalinina,
              kafedra obshchey khimii (Leningrad Polytechnic Institute,
              Department of General Chemistry)

SUBMITTED: December 8, 1958

Card 2/2

LANTRATOV, M.F., TSARENKO, Ye.V.

Thermodynamic properties of the liquid metallic solutions of
Zn – Bi and K – Cd systems. Zhur.prikl.khim. 33 no.5:1116–1128
My '60.
                                        (MIRA 13:7)

1. Leningradskiy elektrotekhnicheskiy institut im. V.I. Ul'ya-
nova (Lenina).
   (Zinc) (Bismuth)   (Potassium)   (Cadmium)

SKIRSTYMONSKAYA, B. I., LANTRATOV, M. F.

Simultaneous discharge of a metal and hydrogen. Zhur.prikl.khim.
33 no.5:1128-1133 My '60.   (MIRA 13:7)
    (Electroplating)   (Reduction, Electrolytic)

S 2610

AUTHORS: Lantratov, M. F., Tsarenko, Ye. V.

TITLE: An Investigation of Thermodynamic Properties of Liquid Metal
              Solutions in the Potassium-Mercury System

TEXT: The thermodynamic properties of liquid alloys of potassium with
mercury were investigated within the temperature range of 250-350°C and within
the concentrations $N_K = 0.04992 - 0.898$ by the emf method. The thermodynamic
properties were calculated from the emf values (E) and the temperature
coefficients of emf($(\frac{dE}{dT})$) of the concentration circuits: K | solid electrolyte
containing K + | K (N_K) - Hg (N_{Hg}), where N_K and N_{Hg} are the atomic percentage
of potassium and mercury, respectively. Equations were presented for the
calculation of the partial values of the isobaric-isothermal potential and the
excess potential of potassium, for the partial molar entropy of mixing and the
excess entropy of the mixture, for the partial molar heat of the mixture, etc.
The emf was measured by a ПГГ В-1 (PPTV-1) potentiometer. It was shown that
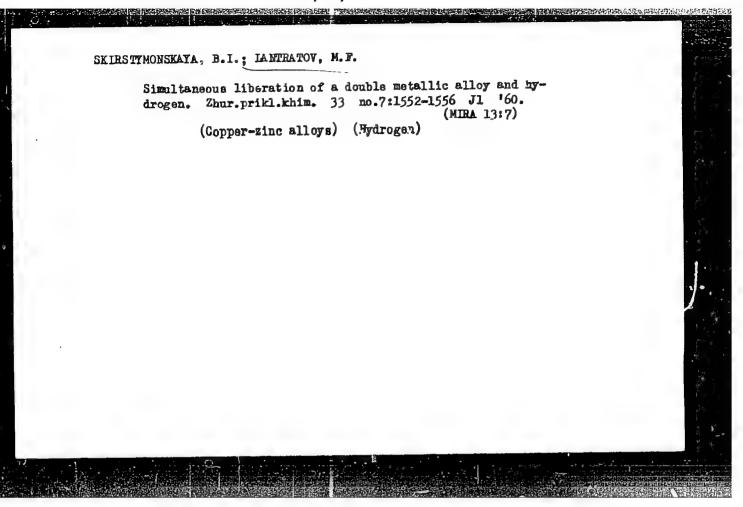the activity of potassium depends on the composition of the alloy. In solutions

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82666
S/080/60/033/007/007/020
A003/A001

An Investigation of Thermodynamic Properties of Liquid Metal Solutions in the
Potassium-Mercury System

containing from 0 to 35.5 atomic % mercury positive deviations from Raoult's
law and in solutions containing more than 35.5 atomic % large negative
deviations are observed. The most stable compound in the K-Hg system is KHg_2.
The curve of the integral heat of mixing has a clear extremum at $N_K = 0.36$,
i. e., in the region of the composition KHg_2. The maximum molar heat is -4.3
kcal/g-atom. There are 5 graphs, 2 tables and 20 references: 8 Soviet,
8 German, 3 English and 1 American.

SUBMITTED: January 28, 1960

Card 2/2

SKIRSTYMONSKAYA, B.I.; IANTRATOV, M.F.

Simultaneous liberation of a double metallic alloy and hy-
drogen. Zhur.prikl.khim. 33 no.7:1552-1556 Jl '60.
(MIRA 13:7)

(Copper-zinc alloys) (Hydrogen)

25059
S/080/60/033/010/008/029
D216/D306

5 2100

AUTHORS: Lantratov, M.F., and Moiseyeva, O.F.

TITLE: Electrical conductivity of mixtures of the fused
              salts of the NaCl - $CaCl_2$ - $BaCl_2$ system

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 10, 1960
            2225 - 2234

TEXT: This is a continuation of the work of A.F. Alabyshev and N.
Ya. Kulakovskaya, who found that by raising the calcium chloride
and more expecially the barium chloride content th conductivity
was reduced. The ternary system NaCl - $CaCl_2$ - $BaCl_2$ is a new easi-

ly-fusible electrolyte for producing metallic sodium from sodium
chloride. and the present study was made with a view of widening
the range both of compositions and of temperatures. The composi-
tion range was divided into six sections; I. $NaCl:CaCl_2$ = 3:7;

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Electrical conductivity of ...

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D216/D306

II. NaCl:CaCl$_2$ = 1:1; II. NaCl:CaCl$_2$ = 7:3; IV. CaCl$_2$:BaCl$_2$ = 3:2;
V. CaCl$_2$:BaCl$_2$ = 3:1; VI. CaCl$_2$:BaCl$_2$ = 7:1. The conductivity was
measured with a similar apparatus to that described by the authors
in a previous paper. The salts NaCl, CaCl$_2$ and BaCl$_2$ were desicca-
ted beforehand, and to eliminate traces of water and oxides the
BaCl$_2$ was heated in a current of HCl at 500-800°, the NaCl and Ca-
Cl$_2$ wer fused and dry HCl was passed through the melt. Conductivi-
ty isotherms of the system NaCl-CaCl$_2$ show minima for 10-20 mol %
NaCl. The product of specific conductivity by viscosity is an im-
portant relationship. O. Menge has described a compound 4NaCl·CaCl$_2$
melting with decomposition at 650° and showing a eutectic at 47.2%
NaCl at 500°. Pichugin did not confirm this but found that NaCl-
CaCl$_2$ is a simple eutectic system. The breakdown of the NaCl-CaCl$_2$
system does not give definite indications about the presence of
complex ions. The article then indicates via graphs: The isotherms

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S/080/60/033/010/008/029
Electrical conductivity of ...
D216/D306

of specific conductivity of the system $CaCl_2$-$BaCl_2$; Conductivity isotherms for various sections of the system $CaCl_2$-$BaCl_2$, 7:1; 3:1; 3:2, respectively; Isotherms (800°) of conductivity of mixtures $NaCl$-$CaCl_2$-$BaCl_2$ for sections with constant ratio of $CaCl_2$-$BaCl_2$; Conductivity of the system $NaCl$-$CaCl_2$-$BaCl_2$ for section I ($NaCl$: $CaCl_2$ = 3:7). Specific conductivity in $\Omega^{-1} \cdot cm^{-1}$ for various $BaCl_2$ contents (mol %), and conductivity isotherms for sections I-III in which the ratio $NaCl$:$CaCl_2$ is held constant and the $BaCl_2$ content varied. Conductivity of mixtures of $NaCl$-$CaCl_2$ is appreciably lowered by adding $BaCl_2$ which also causes lower conductivity by adding to pure NaCl. There are 11 figures and 19 references: 13 Soviet-bloc and 6 non-Soviet-bloc. The references to the English language publications read as follows: J. Story, I. Clarke, J. Metals, 11, 1449, 1957; H. Bloom, J.W. Knaggs, I.I. Melloy, D. Welch, Trans. Faraday Soc., 49, 1458, 1953.
SUBMITTED: March 28, 1960
Card 3/3

5. 4600   68852

AUTHORS: Lantratov, M. F., Moiseyeva, O. F.   S/076/60/034/02/016/044
                                                          BC10/B017

TITLE: Electrical Conductivity of the Solutions of Molten Salts.
              I. The System $PbCl_2$ KCl

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 2, pp 367-374 (USSR)

ABSTRACT: The electrical conductivity of the system $PbCl_2$-KCl has already
              been investigated by N. M. Tarasova (Ref 8) and in the paper
              (Ref 13); contradictory results have been obtained, however. In
              the present paper, the entire system was investigated in the con-
              centration range of 0-100 mol% KCl and in a temperature range of
              425-800°C. The measurements were made on an improved a.c. bridge
              circuit (Fig 1) with an EG-10 generator as current source, and an
              electronic EO-7 oscillograph as indicator. A quartz cylinder with
              a capillary (30-50 mm long, diameter: 0.8-1.2mm) and Pt/PtRh thermo-
              couples served as analyzers (Fig 2). The measurements were made
              polythermally. The results obtained (Table 1, specific electrical
              conductivity; Table 2, equivalent electrical conductivity at 500
              and 650°C) and those from reference 13 do not agree with the ob-
              servations made by N. M. Tarasova. Strongly negative deviations
Card 1/2   of the electrical conductivity were observed. The isothermal lines

Electrical Conductivity of the Solutions of
Molten Salts. I. The System $PbCl_2$ - KCl

68852
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B010/B017

of the specific and equivalent electrical conductivity show a
strong minimum at a composition N_{KCl} = 0.6-0.7 which becomes more
distinct at lower temperatures. The minimum is explained by the
presence of complex lead ions in the $PbCl_2$-KCl melt. This assump-
tion is confirmed by the experimental results on viscosity, sur-
face tension, thermodynamic properties, transference number, and
other properties of the system investigated. The isotherm of the
equivalent electrical conductivity shows a smaller maximum at
N_{KCl}=0.1 which is explained by a dissociation of the autocomplex
$(Pb [PbCl_4])_n$ on addition of small amounts of KCl under formation
of the ions K^+, Pb^{2+} and the complex ions $[PbCl_4]^{2-}$. The curve of
electrical conductivity of pure $PbCl_2$ shows a wave dependent on
the temperature at 600-650° which is explained by the structural
change of the molten $PbCl_2$ at a temperature increase. There are
5 figures, 2 tables, and 23 references, 15 of which are Soviet.

ASSOCIATION: Elektrotekhnicheskiy institut im. V. I. Ul'yanova (Lenina) Lenin-
grad (Institute of Electrical Engineering imeni V. I. Ul'yanov
(Lenin) Leningrad)

SUBMITTED: May 6, 1958
Card 2/2

80226
S/076/60/034/04/13/042
B010/B009

5.4700

AUTHOR: Lantratov, M. F. (Leningrad)

TITLE: Investigation of the Thermodynamic Properties of Liquid Metal
           Solutions. The System Potassium - Lead

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 4, pp. 782-788

TEXT: Owing to the new method of potassium production by an electrochemical
deposition of potassium on a liquid lead cathode and subsequent vacuum distil-
lation the thermodynamic properties of the system potassium-lead have become
practically important. Liquid metal solutions of potassium and lead were in-
vestigated by the emf method in concentrations between 0,05 and 0,9 N_K (N_K =

atomic portion of potassium) and at temperatures from 525 to 600°. The
electromotive forces were measured in concentration chains potassium ‖ glass|po-
tassium - lead, hard glasses containing potassium oxide (of the types No. 23,
29, and ZS-"5k") being used as electrolytes. The measuring cell and working
method were similar to those described in Refs. 2 and 6. The work was carried
out in a purified argon atmosphere. The values of the activity, activity

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Investigation of the Thermodynamic Properties
of Liquid Metal Solutions. The System Potassium-
Lead

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B010/B009

coefficients, partial molar entropy, and heat of mixing as well as the corre-
sponding values of the integral molar values for 550 and 600° were calculated
for the solutions under investigation (Tables 1,2) Highly negative devia-
tions from the ideal behavior were observed, which is believed to be due to
the presence of structural groups of metallic compounds in the liquid phase of
the K-Pb system. An extreme of the integral curves is found in the case of a
composition N_K = 0.5-0.6. The formation of the K-Pb alloys is exothermic, with
a maximum H_K = -5.06 kcal/g-atom. The heat of mixing is mainly determined by
the isobar-isotherm potential. An approximately linear dependence of the
logarithm of the activity of potassium upon temperature was noted. The negative
values of the mixing entropy are considered to be due to the partly ionic
character of the bond in the potassium - lead compounds. KPb is considered to
be the most stable compound in the system under investigation. A. G. Mora-
chevskiy is mentioned in the text. There are 6 figures, 2 tables, and 13
references, 5 of which are Soviet.

Card 2/3

60226

Investigation of the Thermodynamic Properties of
Liquid Metal olutions. The System Potassium -
Lead

S/076/60/034/04/13/042
B010/B009

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova
(Lenina) (Leningrad Electrotechnical Institute imeni V. I. Ul'yanov
(Lenin))

SUBMITTED: June 18, 1958

Card 3/3

30195
S/080/61/034/011/006/020
D227/D301

215240

AUTHORS: Lantratov, M. F., and Tzarenko, Ye. V.

TITLE: Thermodynamic properties of Na-Ga and K-Ga solutions

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 11, 1961,
2435 - 2441

TEXT: Following their studies of the above systems, the authors de-
vote the present work to determining thermodynamic properties of
these systems from the values of emf's (E) and emf temperature
coefficients (dE/dT) of chains:

$$M_1 \left| \begin{array}{c} \text{solid ionic conductor} \\ \text{containing} \\ \text{Na}^+ \text{ or K}^+ \text{ ions} \end{array} \right| M_1(N_1) + M_2(N_2),$$

where M_1 - more electronegative metal (Na or K), M_2 - second compo-
nent of the solution (Ga), N_1 and N_2 - atomic fractions of the com-
ponents. If the state of a pure component is taken as a standard.
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20195
S/080/61/034/011/008/021
Thermodynamic properties of Na-Ga ...   D227/D301

then the values of molar isobar-isothermic potential ($\Delta \bar{Z}_1$) and ex-
cess potential ($\Delta \bar{Z}_1^*$) also activity (α_1) and activity coefficient
($\gamma_1 = \frac{\alpha_1}{N_1}$) may be calculated from the equations:

$$\Delta \bar{Z}_1 = - 23060E = 4.575T \lg \alpha_1 \text{ cal/g·atom}$$

$$\Delta \bar{Z}^* = \Delta \bar{Z}_1 - 4.575T \lg N_1 = 4.75T \lg \gamma_1 \text{ cal/g·atom.}$$

Partial molar entropy of mixing ($\Delta \bar{S}_1$) and excess entropy of mixing
($\Delta \bar{S}_1^*$) are calculated from the equations.

$$\Delta \bar{S}_1 = 23060 \frac{dE}{dT} \text{ cal/deg·g·atom}$$

$$\Delta \bar{S}_1^* = \Delta \bar{S}_1 + 4.575 \lg N_1 \text{ cal/deg·g·atom.}$$

Partial heat of mixing equals:

$$\Delta \bar{H} = \Delta \bar{Z}_1 + T\Delta \bar{S}_1 = 23060 (T \frac{dE}{dT} - E) \text{ cal/g·atom.}$$

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30195
S/080/61/034/011/006/020

Thermodynamic properties of Na-Ga ...   D227/D301

Integral values are obtained by graphical integration using equation:

$$\Delta \overline{G} = (1 - N_1) \int_0^{N_1} \frac{\Delta \overline{G}_1}{(1 - N_1)^2} \, dN_1$$

where $\Delta \overline{G}$ - any principal function of state. Principal values of thermodynamic magnitudes for the second component were calculated from the integral values from equation: $\Delta G = N_1 \cdot \Delta \overline{G}_1 + N_2 \cdot \Delta \overline{G}_2$ where ΔG - integral, $\Delta \overline{G}_1$ and $\Delta \overline{G}_2$ - partial functions of state of the system. The experimental part involved the use of aparatus described in earlier works. Tests were carried out in argon atmosphere using glasses containing Na_2O or K_2O as electrolyte. Metals used were of high purity. Measurements of the emf where done potentiometrically with accuracy of + 0.2 - 0.002 mV and that of temperature with chromel-aluminum thermocouple with accuracy of $\pm 1^\circ C$. For Na - Ga systems the investigations were carried out at 550-625°C and compositions N_{Na} = 0.108 to 0.7964, and it was observed that emf,

Card 3/5

30195

S/080/61/034/011/006/020
D227/D301

Thermodynamic properties of Na-Ga ...

within that temperature range, was proportional to the temperature. Temperature coefficients of emf of sodium-rich alloys had positive values and sodium-poor alloys had negative values. The activity isotherm for sodium at 550°C and concentration $N_{Na} > 0.25$ shows

more positive deviation and slight negative deviation for $N_{Na} < 0.25$

The activity isotherm for gallium on the other hand shows a negative deviation for $N_{Na} < 0.73$ and slight positive deviation for sodium-rich solutions. Such behavior of both activity isotherms indicates the existence, in the liquid alloys, of groups of assymmetric structure, Na_5Ga_8 and $NaGa_3$. The non-symmetry of partial potential curves $\Delta \overline{Z}_{Na}$ and $\Delta \overline{Z}_{Ga}$ is also due to the assymmetry of Na Ga compounds. The integral and partial heats of mixing and also curves for ΔZ^* and $T \Delta S$ are given. The curve for the integral heat has a minimum at $N_{Na} = 0.37$ i.e. within the region of Na_5Ga_8 composition and the maximum ΔH corresponds to - 1760 cals/g.atom. From the graph it follows that ΔH is determined by ΔZ changes

Card 4/5

10195
S/080/61/034/011/006/020
Thermodynamic properties of Na-Ga ...   D227/D301

and $T\Delta S$ has only a small effect on its values. Partial molar en-
tropy of mixing for sodium $\Delta \bar{S}_{Na}$ depends on the composition and has
positive or negative values according to the sodium contnet. In in-
vestigations of K - Ga systems the authors determined the activity
of potassium at 625°C for alloys $N_K = 0.9$ to 0.1, and found that
the behavior of such systems is analogous to Na-Ga systems. There
are 5 figures, 2 tables and 8 references: 6 Soviet-bloc and 2 non-
Soviet-bloc. The reference to the English-language publication
reads as follows: M. Hansen, K. Anderko, Constitution of binary
alloys N.Y., Toronto, London, 1958.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V.I.
            Ul'yanova (Lenina) (Leningrad Electrotechnical Instit-
            ute im. V.I. Ul'yanov (Lenin))

SUBMITTED: January 23, 1961

Card 5/5

LANTRATOV, M.F.; SHEVLYAKOVA, T.N.

Thermodynamic properties of fused salt solutions in the system
PbBr$_2$ - NaBr. Zhur. neorg. khim. 6 no.1:192-198 '61. (MIRA 14:2)
            (Lead bromide)   (Sodium bromide)
                    (Lead chloride)

LANTRATOV, M.F.

Thermodynamic properties of liquid metal solutions in the system
antimony - cadmium - tin. Zhur. prikl. khim. 34 no.1:130-138 Ja
'61.   (MIRA 14:1)
        (Antimony)   (Cadmium)   (Tin)

LANTRATOV, M.F.; SHEVLYAKOVA, T.N.

Thermodynamic properties of solutions of fused salts in the
system CdBr$_2$ - KBr. Zhur. prikl. khim. 34 no.5:1065-1071
My '61.   (MIRA 16:8)

1. Leningradskiy elektrotekhnicheskiy institut imeni V.I.
Ul'yanova (Lenina).
          (Cadmium bromide)   (Potassium bromide)

LANTRATOV, M.F.; MOISEYEVA, O.F.

Electric conductivity of fused salt solutions in the system
$PbCl_2$ - TlCl. Zhur. prikl. khim. 34 no.5:1169-1171 My '61.
(MIRA 16:8)

1. Leningradskiy elektrotekhnicheskiy institut im. Ul'yanova
(Lenina).
(Lead chloride—Electric properties'
(Thallium chloride—Electric properties)

LANTRATOV, M.F.; SHEVLYAKOVA, T.N.

Thermodynamic properties of fused salt solutions in the $CdBr_2$ - NaBr system. Zhur.prikl.khim. 34 no.11:2570-2573 N '61.

(MIRA 15:1)

1. Leningradskiy elektrotekhnicheskiy institut im. V.I.Ul'yanova (Lenina).

(Salts)   (Systems (Chemistry))

S/137/62/000/009/001/033
A006/A101

AUTHORS: Lantratov, M. F., Morachevskiy, A. G.

TITLE: Electrochemical investigation of the thermodynamical properties of liquid ternary metallic systems

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 9, 1962, 6, abstract 9A25 ("Izv. Leningr. elektrotekhn. in-ta", 1961, no. 6, 228 - 264)

TEXT: This is a review. The authors analyze and classify literature data on thermodynamical properties of liquid ternary metallic systems which had been investigated by the method of emf concentration circuits and by measuring the partial vapor pressure of the components. Darken's and Wagner's methods of calculating integral thermodynamical characteristics of ternary systems are discussed. The ternary systems are divided into 7 classes according to the types of phase diagrams of boundary binary systems. For many systems lines of iso-activity of the components at 400 - 800°C and isolines $\triangle Z^*$ are plotted on concentration triangles. Substantial errors are obtained in the calculation of mixing heat and entropy values $\triangle H$ and $\triangle S$ in ternary systems. The calculations

Card 1/2

Electrochemical investigation of the...

S/137/62/000/009/001/033
A006/A101

are based on the experimental determination of partial molar thermodynamical characteristics for one of the components by the Durken method. The errors are particularly noticeable at low absolute values ΔH and ΔS, i.e. in systems with insignificant deviations from ideal behavior.

I. Levtonov

[Abstracter's note: Complete translation]

Card 2/2

AUTHORS: Lantratov, M. F., and Skirstymonskaya, B. I. (Leningrad)

TITLE: Depolarization in the deposition of alkali metals on liquid
                cathodes

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 11, 1962, 2442 - 2447

TEXT: The decomposition voltages of pure KCl ($810^{\circ}C$) and $NaCl$ ($850^{\circ}C$)
were measured on solid (Mo, Fe, Ni) and liquid (Zn, Pb, Sn, Bi, Sb) cath-
odes. $\Delta\varphi$ the depolarization was determined for deposition of K and Na on l
liquid cathodes and compared with the values calculated from thermo-
dynamic data. The results (Table 2) show that the depolarization depends
on the nature of the liquid cathode and on the nature of interaction during
the formation of the alloy. The relations obtained can be applied to
other examples of liquid alloys produced on the cathode by the electrolysis
of fused salts. There are 2 figures and 2 tables.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'ya-
                nova (Lenina) (Leningrad Electrotechnical Institute imeni
                V. I. Ul'yanov (Lenin))

Card 1/2

Depolarization in the deposition...   S/076/62/036/011/009/021
                                             B101/B160

SUBMITTED: July 5, 1961

Table 2.   Decomposition voltage and depolarization in the deposition of alkali metals on different cathodes.
Legend: (1) Cathode; (2) decomposition voltage; (3) $\Delta\varphi_{exp}$, v; (4) $\Delta\varphi_{theor}$; (5) composition of the most stable compound and its m.p. according to M. Hansen, K. Anderko, Constitution of binary alloys, 1958; (6) series of congruently melting compounds.

(1)	(2)	(3)	(4) KCl (810°)	(5)
Mo	3,44	—	—	—
Ni	3,44	—	—	—
Fo	3,44	—	—	—
Zn	3,10	0,34	—	KZn_{13} (599°)
Pb	2,78	0,66	0,65 (600°)	KPb (578°)
Sn	2,53	0,91	—	KSn (600°)
Bi	2,27	1,17	1,07 (575°)	K_3Bi (671°)
Sb	2,16	1,28	—	K_3Sb (812°)
			NaCl (850°)	
Mo	3,245	—	—	—
Fo	3,24	—	—	—
Zn	2,97	0,27	0,275 (600°)	$NaZn_{13}$ (557°)
Pb	2,74	0,50	0,59 (600°)	Ряд конгруэнтно плавящихся соединений (6)
Sn	2,78	0,46	0,49 (600°)	NaSn (576°)
Bi	2,38	0,86	0,82 (475°)	Na_3Bi (778°)
Sb	2,28	0,96	—	Na_3Sb (856°)

Card 2/2

LANTRATOV, M.F.; SKIRSTYMONSKAYA, B.I.

Deplorization in the deposition of alkali metals on liquid
cathodes. Zhur. fiz. khim. 36 no.11:2442-2447 N'62.

(MIRA 17:5)

1. Leningradskiy elektrotekhnicheskiy institut imeni Ul'yanova
(Lenina).

LANTRATOV, M. F., kand. khimicheskikh nauk, dotsent; MORACHEVSKIY,
A. G., kand. tekhn. nauk

Electrochemical studies of the thermodynamic properties of
liquid ternary metal systems. Izv. LETI 59 no.46:228-264
'62.   (MIRA 15:10)

(Alloys)   (Systems(Chemistry))

LANTRATOV, M.F.; MORACHEVSKIY, A.G.; ANTONOVA, M.I.

Thermodynamic properties of liquid alloys of the Na - Zn system.
Zhur.prikl.khim. 36 no.6:1278-1283 Je '63.   (MIRA 16:8)
          (Zinc-sodium alloys—Thermodynamic properties)

LANTRATOV, M.F.; MOISEYEVA, O.F.

Conductance of fused salt solutions in the systems
$PbBr_2$ - NaBr and $PbBr_2$ - KBr. Zhur. prik. khim. 36 no.10:
2201-2205 O '63.   (MIRA 17:1)

1. Leningradskiy elektrotekhnicheskiy institut imeni Ul'yanova
(Lenina).

EFROS, I.D.; LANTRATOV, M.F.

Decomposition voltage of potassium fluotantalate in fused salt
solutions. Zhur. prikl. khim. 36 no.12:2659-2666 D'63.
                                                (MIRA 17:2)

ALABYSHEV, A.F.; LANTRATOV, M.F.

Investigating thermodynamic properties of liquid metal solutions
in the system Sb – Zn – Cd. Trudy LPI no.223:55-66 '63.
(MIRA 17:11)

EFROS, I.D.; LANTRATOV, M.F.

Fusibility of the region rich in potassium fluoride of the
system kF - TaF$_5$. Zhur. prikl. khim. 37 no.11:2521-2523 N'64
(MIRA 18:1)

ALABYSHEV, Aleksandr Filosofovich, doktor tekhn. nauk, prof.;
    LANTRATOV, Mikhail Fedorovich, kand. khim. nauk;
    MORACHEVSKIY, Andrey Georgiyevich, kand. tekhn. nauk;
    ZASLAVSKAYA, M.I., red.

    [Reference electrodes for fused salts] Elektrody sravne-
    niia dlia rasplavlennykh solei. Moskva, Metallurgiia,
    1965. 129 p.   (MIRA 18:3)

LANTRATOV, S, YE,

Shoe Industry

At a restored factory, Leg. prom., 12, No. 6, 1952.

LANTRATOVA, A.S.

Geobotanical analysis of the white wormwood (Artemisia alba) forma-
tion. Trudy Kar.-fin.gos.un.6 no.3:65-87 '54.   (MLRA 10:2)

1. Kafedra botaniki.
   (Volga Valley--Pastures and meadows)   (Arthemisia)
         (Botany--Ecology)

Lantratova, A.S

USSR / Forestry. Forest Plants.   K-5

Abs Jour: Ref Zhur - Biologiya, No. 1, 1958, 1369

Author : Lantratova, A.S.

Inst   : Petrozavodsk University

Title   : The Influence of Geographical Derivation of
           Siberian Larch Seed on the Condition of the
           Shoots in the Southern Regions of the Karelian
           ASSR

Orig Pub: Uch. zap. Petrozavodskogo un-ta, 1956, (1957),
           7, No. 3, 49-64.

Abstract: The Tuvinskaya autonomous oblast', Altay kray,
           and Khakassiya Larch seeds from various re-
           gions of Siberia were planted in the botanical
           garden of Petrozavodsk University and in the

Card 1/3

USSR / Forestry. Forest Plants.   K-5

Abs Jour: Ref Zhur - Biologiya, No. 1, 1958, 1369

"Kivach" national forest. The Western Siberian
seeds were the heaviest in absolute weight
(7.6 g.); the lightest were those from the
Tuvinskaya Autonomous Oblast' (5.5 g.). They
were sown in pine- and spruce-type forests. The
seed in the sphagnous pine forest gave the
highest percent of germinability, and in the
lichenous pine forest a low percent. The West-
ern Siberian seed possessed high sprouting
energy, high ground germinability, and produced
the hardiest shoots in types of forests with a
rather moist upper soil layer. However, the
shoots from these seeds appeared later than all
the others (the Altay seeds were the first to
sprout). It was noted that the Western Siber-

Card 2/3

USSR / Forestry. Forest Plants.

Abs Jour: Ref Zhur - Biologiya, No. 1, 1958, 1369

ian seedlings were the first to form coniferous needles and internodes; they also evidenced the most intensive growth compared with seedlings from other seeds (especially the Tuvinskiy). All shoots grew best in the sphagnous pine forest and worst in the lichenous. The growth of the root systems of all species was optimal in the bilberry pine forest. In the nursery, located at the edge of the forest, the ground germinability of the larch seeds was lower than on the clearings; the growth intensity of the shoots, however, approached the rates indicated by the clearing indices. Under nursery conditions the Tuvinskiy types showed better results than other seeds. Technical recommendations are given for cultivating these plants.

Card 3/3

Country   : USSR
Category   : Forestry. Forest Cultures.   K

Abs Jour   : RZhBiol., No 6, 1959, No 24733

Author   : Lantratova, A. S.
Inst   : Petrozavodsk University.
Title   : Effect of the Presowing Treatment of Seeds
                on the Growth of Seedlings of the Siberian
                Larch.
Orig Pub   : Uch. zap. Petrozavodsk. un-ta, 1957 (1958),
                8, No. 3, 49-53

Abstract   : On the territories of the Botanical Garden of
                Petrozavodsk University, the Forest Reserva-
                tion "Kivach" and Petrozavodsk State Forest
                Management, seeds of the Siberian larch from
                Altay, Buryat-Mongoloa, Leningradskaya Oblast

Card   : 1/4

41

Country   : USSR
Category   : Forestry. Forest Cultures.   K

Abs Jour   : RZhBiol., No 6, 1959, No 24733

Author   :
Inst   :
Title   :

Orig Pub   :

Abstract   : and from the local Sortaval' State Forest were
                planted repeatedly three time on 24-27 May
                1954 and 1955. Prior to planting, the seeds
                were kept for 12 hours in water, in 1 per-
                cent lime and 0.03 percent manganese solu-
                tions. Dry seeds served as a control. Treat-
                ment of the seeds by water increased the ger-
                mination of the seeds by 10 percent; by the
                lime solution, 14 percent, and by the solu-

Card   : 2/4

Country   : USSR
Category   : Forestry. Forest Cultures.   K

Abs Jour   : RZhBiol., No 6, 1959, No 24733

Author   :
Inst   :
Title   :

Orig Pub   :

Abstract   : tion of Mn, 27.4 percent. The most lively
               sprouts, the greatest height and the most
               developed root system were formed in seedlings
               from seeds treated with Mn. The average height
               of one-year-old seedlings from these seeds
               were 2-3 times larger than those under control,
               and an increment for the second vegetative pe-
               riod exceeded almost tenfold the increment of

Card   : 3/4

42

Country   : USSR
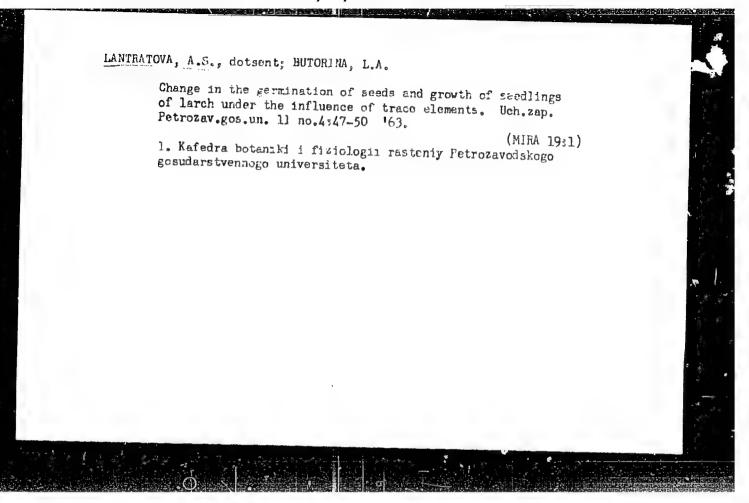Category   : Forestry. Forest Cultures.   K

Abs Jour   : RZhBiol., No 6, 1959, No 24733

Author   :
Inst   :
Title   :

Orig Pub   :

Abstract   : the plants under control. Good results were
                obtained by treatment of the seeds with lime.
                -- N. Ye. Skripitsyna

Card   : 4/4

LANTRATOVA, A.S., dotsent; BUTORINA, L.A.

Change in the germination of seeds and growth of seedlings
of larch under the influence of trace elements. Uch.zap.
Petrozav.gos.un. 11 no.4:47-50 '63.

(MIRA 19:1)

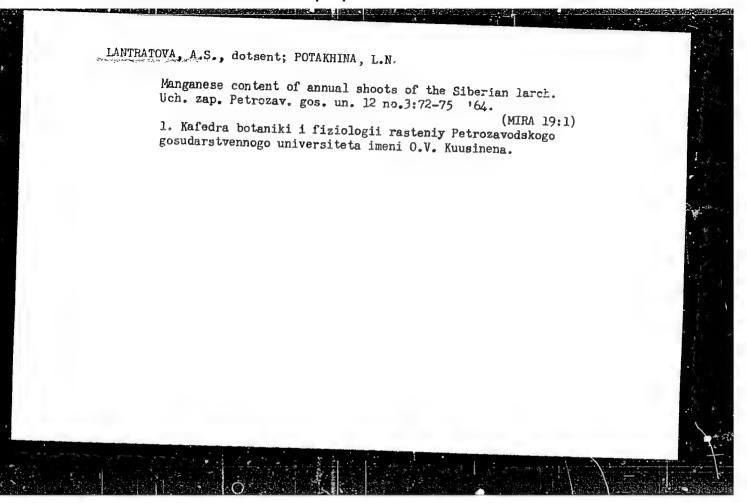1. Kafedra botaniki i fiziologii rasteniy Petrozavodskogo
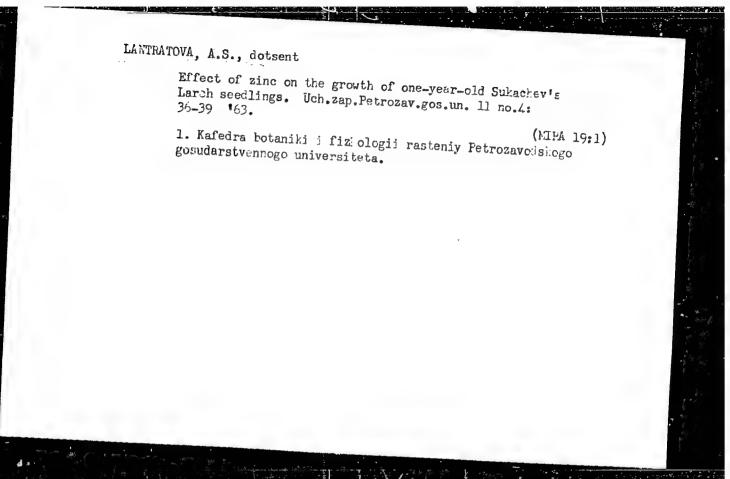gosudarstvennogo universiteta.

LANTRATOVA, A.S., dotsent; GYUBIYEVA, V.F.

Use of heteroauxin in growing the Siberian larch. Uch. zap.
Petrozav. gos. un. 12 no.3:43-46 '64.   (MIRA 19:1,

1. Kafedra botaniki i fiziologii rasteniy Petrozavodskogo
gosudarstvennogo universiteta imeni O.V. Kuusinena.

LANTRATOVA, A.S., dotsent; POTAKHINA, L.N.

Manganese content of annual shoots of the Siberian larch.
Uch. zap. Petrozav. gos. un. 12 no.3:72-75 '64.

(MIRA 19:1)

1. Kafedra botaniki i fiziologii rasteniy Petrozavodskogo
gosudarstvennogo universiteta imeni O.V. Kuusinena.

LANTRATOVA, A.S., dotsent

Effect of zinc on the growth of one-year-old Sukachev's
Larch seedlings. Uch.zap.Petrozav.gos.un. 11 no.4:
36-39 '63.

1. Kafedra botaniki i fiziologii rasteniy Petrozavodskogo   (MIRA 19:1)
gosudarstvennogo universiteta.

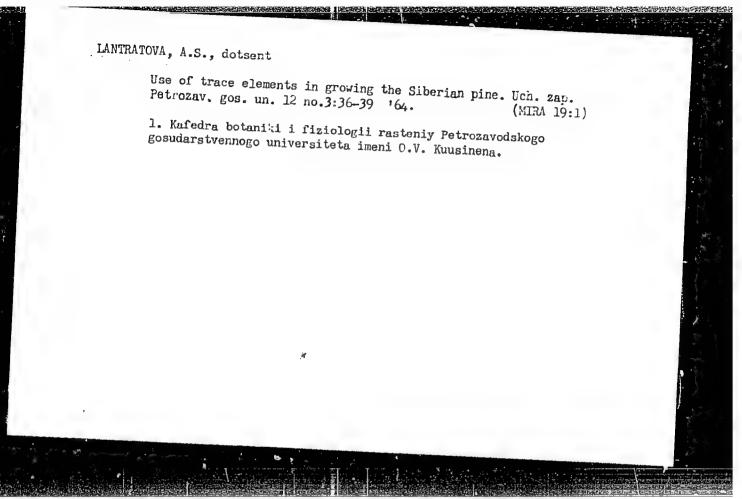LANTRATOVA, A.S., dotsent

Use of trace elements in growing the Siberian pine. Uch. zap.
Petrozav. gos. un. 12 no.3:36-39 '64.   (MIRA 19:1)

1. Kafedra botaniki i fiziologii rasteniy Petrozavodskogo
gosudarstvennogo universiteta imeni O.V. Kuusinena.

LANKRATOVA, Antonina Stepanovna; OVCHINNIKOVA, Yevgeniya Aleksandrovna;
SHEKHTER, D.I., red.

[Key to trees and shrubs] Opredelitel' derev'ev i kustarnikov.
Petrozavodsk, Karel'skoe knizhnoe izd-vo, 1965. 153 p.
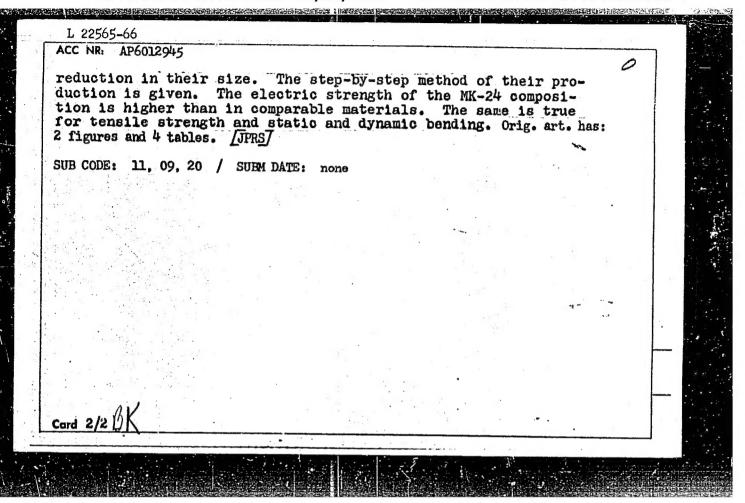(MIRA 18:9)

SHTERTSL', Ya., FRANEK, F.; RZHIGA, I., KOSTKA, Y.; LANTS, A.

Genesis and properties of nonantigenic -globulin in newborn
animals; first appearance of natural antibodies and their relation
to bactericidal properties of the serum. Zhur.mikrobiol., epid.i
immun. 33 no.8:60-68 Ag '62.   (MIRA 15:10)

1. Iz Biologicheskogo instituta Chekhoslovatskoy akademi. nauk,
Praga.
           .   (GAMMA GLOBULIN)   (INFANTS (NEWBORN))

L 22565-66   EWP(e)   WH

ACC NR: AP6012945

SOURCE CODE: UR/0072/65/000/009/0039/0042

AUTHOR: Yashchuk, A. P.; Lants, M. Ye.

41

ORG: Insulator and Fittings Plant im. Artem (Armaturno-izolyatornyy zavod)

B

TITLE: High-strength porcelain for small-size high-voltage insulators

SOURCE: Steklo i keramika, no. 9, 1965, 39-42

TOPIC TAGS: porcelain, dielectric loss, quartz, tensile strength, electric insulator, bending strength

ABSTRACT: The article describes a new formula for porcelain on a base of the presently used raw material in the Slavyanskiy plant imeni Artema without the additional introduction of expensive components into the porcelain composition. The new composition is known as the MK-24 porcelain composition and is characterized by a reduced alkali content and increased quartz content. Reducing the feldspar material content and raising the dispersity of the grog components made it possible to decrease the porcelain's dielectric loss tangent angle by about 30 to 40%. Petrographic analysis permitted the conclusion that the high electromechanical properties of the MK-24 porcelain are primarily due to the high degree of structural homogeneity. Insulators made from this composition have augmented electromechanical indexes which permit a

Card 1/2

UDC: 666.593

L 22565-66

ACC NR: AP6012945

reduction in their size. The step-by-step method of their pro-
duction is given. The electric strength of the MK-24 composi-
tion is higher than in comparable materials. The same is true
for tensile strength and static and dynamic bending. Orig. art. has:
2 figures and 4 tables. [JPRS]

SUB CODE: 11, 09, 20 / SUBM DATE: none

Card 2/2

AAMISEPP, I.; EICHENBAUM, E.; HALLER, E.; KAARLI, K.; KIIK, H.;
        KIVI, V.; KOTKAS, H.; KORJUS, H.; LEIVATEGIJA, L.; LIIV,J.;
        LÄNTS, L.; MÄLKSOO, A.; PEDAJA, V.; POLNA, H.; RANDALU, I.;
        RUUGE, J.; SEKSEL, H.; TOOMRE, R.; TUPITS, H.; TUUL, S.;
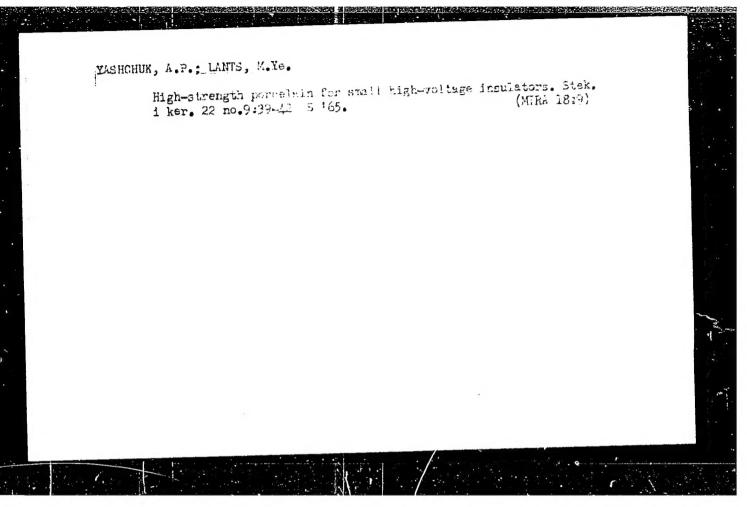   TÕNISSON, H.; TÄÄGER, A.; VIIRAND, M.; VAHENÕMM, K.; ARAK,A.,
        red.

        [Plant breeding] Taimekasvatus. Tallinn, Eesti Raamat, 1964.
        813 p. [In Estonian]   (MIRA 18:1)

YASHCHUK, A.P.; LANTS, M.Ye.

High-strength porcelain for small high-voltage insulators. Stek.
i ker. 22 no.9:39-42 5 '65.
                                                         (MIRA 18:9)

15(2)

AUTHORS: Yashchuk, A. P., Lants, M. Ye.   SOV/72-59-6-12/18

TITLE: The Use of Kaolins Without Electrolytes (Primeneniye bezelektro-
              litnykh kaolinov)

PERIODICAL: Steklo i keramika, 1959, Nr 6, pp 45 - 47 (USSR)

ABSTRACT: In this article the authors give a description of experiments
              made in the Slavyanskiy armaturno-izolyatornyy zavod imeni
              Artema (Slavyansk Factory for Fittings and Insulators imeni
              Artem) for the purpose of replacing the kaolin of the Prosyanovskoye
              deposit by the kaolin of the Polozhskoye deposit. Table 1 contains
              the analyses of both kinds of kaolin, which differ but little
              from one another. Table 2 gives their granulation according to
              the analysis of Sabanin, and table 3 shows their degrees of
              plasticity resulting from the Vasil'yev method. After performing
              these analyses, the Factory imeni Artem produced a porcelain
              mass only from Polozhskiy kaolin under operational conditions
              which did not differ from the mass hitherto made from
              Prosyanovskiy and Polozhskiy kaolina. (Table 4). From both masses
              samples were made and subjected to electro-mechanical tests
Card 1/2   made by GIEKI, the results of which are listed in table 5.